

Lab 1 - Dial Peers and H.323 Gateways

CCNA Voice Lab 1

Dial Peers and H.323 Gateways

Lab Objective:

The objective of this lab exercise is for you to learn and understand how to implement dial peers on Cisco IOS H.323 gateways

Topic Description:

A dial-peer is associated with each call leg in a VoIP call. The matching process for a dial peer will vary depending on whether it is an inbound dial peer, i.e. it is matching incoming calls, or an outbound dial peer, i.e. it is matching outgoing calls.

Lab Difficulty:

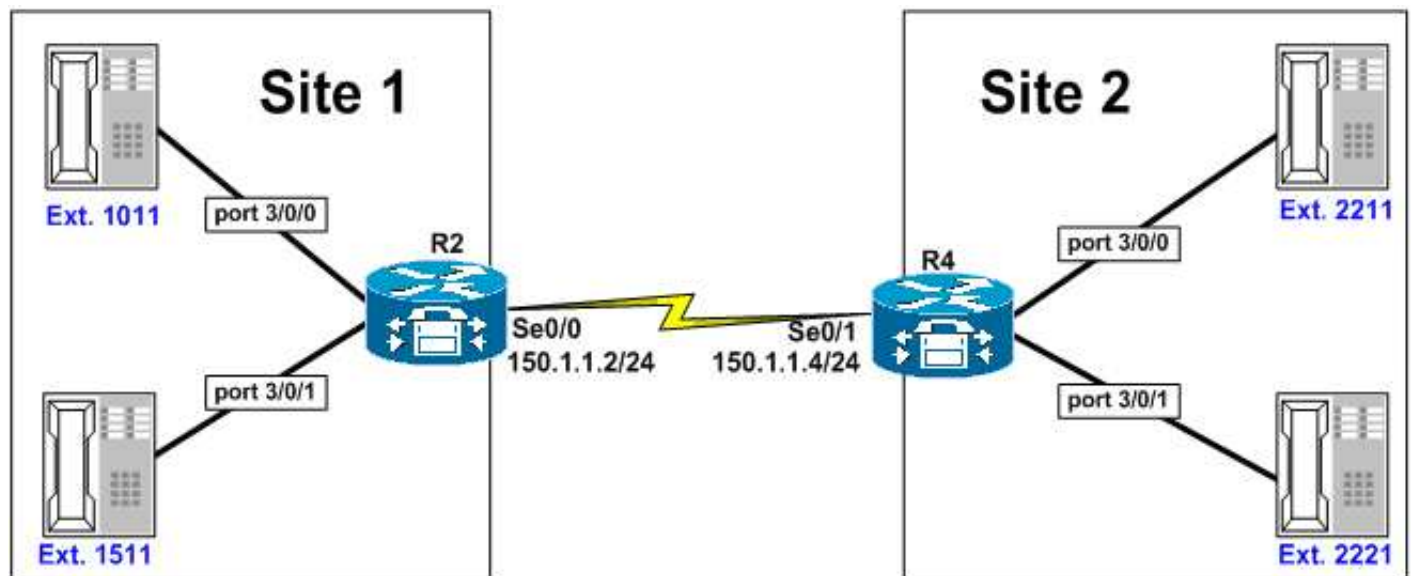
This lab has a difficulty rating of 6/10

Readiness Assessment:

When ready for your exam, you should be able to complete this lab in less than 10 minutes

Lab Topology:

Please use the following topology to complete this lab exercise:



Lab 1 Configuration Tasks

Task 1:

Configure the hostnames and IP addresses on R2 and R4 as illustrated in the diagram. Configure R4 to provide clocking to R2. Configure the clock rate on R4 as 800Kbps

Task 2:

Configure POTS dial peers on R2 using the information in the diagram. You are permitted to use any dial peer numbers that you want to use

Task 3:

Configure POTS dial peers on R4 using the information in the diagram. You are permitted to use any dial peer numbers that you want to use

Task 4:

Configure a single VoIP dial peer on R2 to the R4 extension range. You are permitted to use any dial peer numbers that you want to use. Be as specific as possible

Task 5:

Configure a single VoIP dial peer on R4 to the R2 extension range. You are permitted to use any dial peer numbers that you want to use. Be as specific as possible

Task 6:

Verify your configuration by placing calls between the extensions on R2 and R4 and using the appropriate Cisco IOS voice gateway **show** commands to verify call success

Lab 1 Configuration and Verification

Task 1:

```
R2(config)#hostname R2
R2(config)#interface Serial0/0
R2(config-if)#description .Connected To R4 Serial 0/1.
R2(config-if)#ip address 150.1.1.2 255.255.255.0
```

```
R4(config)#hostname R4
R4(config)#interface Serial0/1
R4(config-if)#description .Connected To R2 Serial 0/0
R4(config-if)#ip address 150.1.1.4 255.255.255.0
R4(config-if)#clock rate 800000
```

Verify connectivity by performing a simple ping between the two routers

```
R2#ping 150.1.1.4
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 150.1.1.4, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
```

```
R4#ping 150.1.1.2
```

```
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 150.1.1.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/8 ms
```

Task 2:

```
R2(config)#dial-peer voice 1 pots
R2(config-dial-peer)#destination-pattern 1011
R2(config-dial-peer)#port 3/0/0
R2(config-dial-peer)#exit
R2(config)#dial-peer voice 2 pots
R2(config-dial-peer)#destination-pattern 1511
R2(config-dial-peer)#port 3/0/1
R2(config-dial-peer)#exit
```

Task 3:

```
R4(config)#dial-peer voice 1 pots
R4(config-dial-peer)#destination-pattern 2211
R4(config-dial-peer)#port 3/0/0
R4(config-dial-peer)#exit
R4(config)#dial-peer voice 2 pots
```

```
R4(config-dial-peer)#destination-pattern 2221  
R4(config-dial-peer)#port 3/0/1  
R4(config-dial-peer)#exit
```

Task 4:

```
R2(config)#dial-peer voice 3 voip  
R2(config-dial-peer)#destination-pattern 22[1-2]1  
R2(config-dial-peer)#session target ipv4:150.1.1.4  
R2(config-dial-peer)#exit
```

An acceptable dial peer destination pattern could also be:

```
R2(config)#dial-peer voice 3 voip  
R2(config-dial-peer)#destination-pattern 22[12]1  
R2(config-dial-peer)#session target ipv4:150.1.1.4  
R2(config-dial-peer)#exit
```

Task 5:

```
R4(config)#dial-peer voice 3 voip  
R4(config-dial-peer)#destination-pattern 1[05]11  
R4(config-dial-peer)#session target ipv4:150.1.1.2  
R4(config-dial-peer)#exit
```

Task 6:

The first task is to verify that the extensions match the configured VoIP destination patterns:

```
R4#show dialplan number 1011 | i Macro|Voice|Type|type  
Macro Exp.: 1011  
VoiceOverIpPeer3  
    peer type = voice, information type = voice,  
    numbering Type = 'unknown'  
    type = voip, session-target = 'ipv4:150.1.1.2',  
    RTP dynamic payload type values: NTE = 101  
    RTP comfort noise payload type = 19  
    Max Redirects = 1, signaling-type = cas,
```

```
R4#  
R4#show dialplan number 1511 | i Macro|Voice|Type|type  
Macro Exp.: 1511  
VoiceOverIpPeer3  
    peer type = voice, information type = voice,  
    numbering Type = 'unknown'  
    type = voip, session-target = 'ipv4:150.1.1.2',  
    RTP dynamic payload type values: NTE = 101  
    RTP comfort noise payload type = 19  
    Max Redirects = 1, signaling-type = cas,
```

The same should be performed on R2:

```
R2#show dialplan number 2211 | i Macro|Voice|Type|type  
Macro Exp.: 2211  
VoiceOverIpPeer3  
    peer type = voice, information type = voice,  
    numbering Type = 'unknown'  
    type = voip, session-target = 'ipv4:150.1.1.4',  
    RTP dynamic payload type values: NTE = 101  
    RTP comfort noise payload type = 19  
    Max Redirects = 1, signaling-type = cas,
```

```
R2#  
R2#show dialplan number 2221 | i Macro|Voice|Type|type  
Macro Exp.: 2221  
VoiceOverIpPeer3  
    peer type = voice, information type = voice,  
    numbering Type = 'unknown'  
    type = voip, session-target = 'ipv4:150.1.1.4',
```

```
RTP dynamic payload type values: NTE = 101
RTP comfort noise payload type = 19
Max Redirects = 1, signaling-type = cas,
```

Next, place calls between the routers and verify success. If you do not have physical access to the telephones, use the **csim start [number]** command. In the following, the two calls are placed from the extensions on R2 to the extensions on R4:

R2#**show call active voice compact**

```
<callID> A/O FAX T<sec> Codec      type Peer Address      IP R<ip>:<udp>
Total call-legs: 4
    24 ANS   T19   g729r8   TELE P1011
    25 ORG   T19   g729r8   VOIP P2211      150.1.1.4:19202
    26 ANS   T12   g729r8   TELE P1511
    27 ORG   T12   g729r8   VOIP P2221      150.1.1.4:18896
```

R4#**show voice call summary**

PORT	CODEC	VAD	VTSP	STATE	VPM	STATE
3/0/0	g729r8	y	S_CONNECT		FXSLS_CONNECT	
3/0/1	g729r8	y	S_CONNECT		FXSLS_CONNECT	

Final Relevant Configuration R2:

R2#**show running-config**

Building configuration...

```
Current configuration : 1464 bytes
!
version 12.4
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
!
!
!
interface Serial0/0
description .Connected To R4 Serial 0/1.
ip address 150.1.1.2 255.255.255.0
no fair-queue
!
!
!
!
!
voice-port 3/0/0
!
voice-port 3/0/1
!
voice-port 3/1/0
!
voice-port 3/1/1
!
!
!
!
dial-peer voice 1 pots
destination-pattern 1011
port 3/0/0
!
dial-peer voice 2 pots
destination-pattern 1511
port 3/0/1
```

```
!  
dial-peer voice 3 voip  
destination-pattern 22[1-2]1  
session target ipv4:150.1.1.4
```

Final Relevant Configuration R4:

R4# **show running-config**

Building configuration...

Current configuration : 1458 bytes

```
!  
version 12.4  
service timestamps debug datetime msec  
service timestamps log datetime msec  
no service password-encryption  
!  
hostname R4  
!  
!  
interface Serial0/1  
description .Connected To R2 Serial 0/0  
ip address 150.1.1.4 255.255.255.0  
clock rate 800000  
!  
!  
!  
voice-port 3/0/0  
!  
voice-port 3/0/1  
!  
voice-port 3/1/0  
!  
voice-port 3/1/1  
!  
!  
!  
dial-peer voice 1 pots  
destination-pattern 2211  
port 3/0/0  
!  
dial-peer voice 2 pots  
destination-pattern 2221  
port 3/0/1  
!  
dial-peer voice 3 voip  
destination-pattern 1[05]11  
session target ipv4:150.1.1.2
```



